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EXAMINER	
RUSSELL, WANDA Z	
ART UNIT	**PAPER NUMBER**
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/689,090	GRANT ET AL.	
	Examiner	Art Unit	
	Wanda Z. Russell	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1-8, 11, 14-17, and 20** under 35 U.S.C. 102(e) are rejected as being anticipated by Lay (Pub No. US 2002/0176357).

For **claim 1**, Lay teaches a method (Abstract, line 1) for providing backpressure ([0028], last line) information from a physical layer device (PHY & 104-Fig. 1A, and [0030], line 1-2, & [0031], lines 1-2) to a link layer device (MAC and 116 -Fig. 1A. Note that comparing [0028], lines 1-4 and [0039], lines 1-2 concludes that 116 is located in MAC) in a communication system (100-Fig. 1A), the method comprising the steps of:

generating (provide, [0031], line 6) a flow control message ([0031], line 7) in the physical layer device (PHY & 104-Fig. 1A, and [0030], lines 1-2, & [0031], lines 1-2) responsive to a detected condition (the flow of packet data, [0039], lines 2-3) relating to at least a given one of a plurality of queues ([0037], line 3) of the physical layer device; and

transmitting (monitor, [0039], line 4) the flow control message ([0031], line 7) from the physical layer device to the link layer device ([0027], lines 1-3, [0031], lines 6-9, and [0039], lines 4-6);

wherein the flow control message comprises backpressure ([0028], last line) information associated with the given queue ([0037], line 3) of the physical layer device and is transmitted from the physical layer device to the link layer device ([0027], lines 1-3, and [0039], lines 1-6) as an in-band message ([0031], line 8) over an interface (108-Fig. 1A) between the physical layer device and the link layer device (Fig. 1A).

For **claim 2**, Lay teaches the method of claim 1 wherein the given queue has an upper threshold (high threshold, [0077], line 6) and a lower threshold (low threshold , [0077], line 2) associated therewith, corresponding to respective fullness levels of the queue.

For **claim 3**, Lay teaches the method of claim 2 wherein the flow control message comprises backpressure ([0028], last line) information indicating that the queue fullness has crossed the upper threshold from below that threshold ([0077], last 4 lines).

For **claim 4**, Lay teaches the method of claim 2 wherein the flow control message comprises backpressure information indicating that the queue fullness has crossed the lower threshold from above that threshold ([0077], lines 1-5).

For **claim 5**, Lay teaches the method of claim 1 wherein the flow control message comprises in addition to the backpressure information an identifier

(RECEP_COMPL, [0070], lines 1-7, and last 3 lines) of the given queue with which the backpressure information is associated ([0028], and [0070]).

For **claim 6**, Lay teaches the method of claim 5 wherein the identifier comprises a logical MPHY value corresponding to the given queue ([0070], lines 4-7).

For **claim 7**, Lay teaches the method of claim 1 wherein the flow control message identifies a particular one of a plurality of detected conditions relating to the given queue, the plurality of detected conditions comprising at least an over-threshold condition and an under-threshold condition ([0077]).

For **claim 8**, Lay teaches the method of claim 7 wherein the plurality of detected conditions further comprises an empty queue condition and a full queue condition ([0075], lines 1-2, [0076], lines 1-3, and [0077], lines 1-end).

For **claim 11**, Lay teaches the method of claim 1 wherein the flow control message is deliverable from the physical layer device to a designated queue (point to a queue, [0070], lines 11-12, and 7-end) of the link layer device.

For **claim 14**, Lay teaches the method of claim 1 wherein the link layer device is operative to perform multiple-rate traffic shaping responsive to the backpressure (collision backpressure, [0028], last line, and [0071], line 2) information in the flow control message ([0071], lines 1-end).

For **claim 15**, Lay teaches the method of claim 14 wherein the link layer device is operative to perform the multiple-rate traffic shaping by selecting ([0039], lines 6-end) one of a plurality of available scheduling rates for a channel associated with the egress

queue of the physical layer device responsive to backpressure information in the flow control message.

For **claim 16**, Lay teaches the method of claim 15 wherein the link layer device is operative to perform the multiple-rate traffic shaping (FCM 116, [0077], line 7) by selecting a first one (slow down, [0077], line 5) of the plurality of available scheduling rates for the channel if the backpressure information indicates an under-threshold condition ([0077], line 2), and selecting a second one (dropping, [0077], line 8) of the plurality of available scheduling rates for the channel if the backpressure information indicates an over-threshold condition ([0077], line 6).

For **claim 17**, Lay teaches the method of claim 16 wherein the first and second rates correspond to 100% and 80%, respectively, of a nominal High-level Data Link Control (HDLC) channel rate (Lay uses 90% and 80%, and those numbers can be set arbitrarily).

For **claims 18-19**, they are apparatus claims corresponding to method claim 1. Therefore it is rejected for the same reason above.

For **claim 20**, Lay teaches a method for providing multiple-rate traffic shaping ([0039], lines 6-end) in a link layer device (116 and MAC-Fig. 1A) in a communication system (Fig. 1A), the method comprising the steps of:

Receiving (monitor, [0039], line 4) from a physical layer device (PHY and 104-Fig. 1A) of the system a flow control message ([0031], line 7) responsive to a detected condition (the flow of packet data, [0039], lines 2-3) relating to at least a given one of a plurality of queues ([0037], line 3) of the physical layer device; and

selecting (setting, [0039], lines 8-end) one of a plurality of available traffic shaping characteristics (memory, [0039], line 8) for utilization with a given channel between the link layer device and the physical layer device based at least in part on the flow control message ([0039]).

Claim Rejections - 35 USC § 103

3. **Claims 9 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lay as applied to claim 1, above, further in view of McDonnell (Pub No. US 2005/0278503).

For **claim 9**, Lay teaches everything claimed as applied above (see claim 1). However, Lay fails to specifically teach the method of claim 1 wherein the interface between the physical layer device and the link layer device comprises an SPI-3 ingress interface.

McDonnell teaches the method of claim 1 wherein the interface between the physical layer device and the link layer device comprises an SPI-3 ingress interface ([0041], line 9).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Lay with McDonnell to obtain the invention as specified, for associating with more interfaces.

For **claim 10**, Lay teaches everything claimed as applied above (see claims 1 and 9). In addition, Lay teaches the method of claim 9 wherein the flow control message is transmitted at a highest priority level (FIFO, [0069], line 2) on the SPI-3 ingress interface between the physical layer device and the link layer device.

4. **Claims 12 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lay as applied to claim 1, above, further in view of Munter (Pub No. US 2002/0075540).

For **claim 12**, Lay teaches everything claimed as applied above (see claims 1 and 11). However, Lay fails to specifically teach the method of claim 11 wherein the designated queue comprises a class of service queue of the link layer device.

Munter teaches the method of claim 11 wherein the designated queue comprises a class of service (CoS) ([0056], line 3) queue of the link layer device.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine [Lay] with [Munter] to obtain the invention as specified, for protecting a type of traffic.

For **claim 13**, Lay teaches everything claimed as applied above (see claims 1, 11, and 12). However, Lay fails to specifically teach the method of claim 12 wherein the CoS queue is one of a plurality of CoS queues serviced by a quality of service (QoS) queue of the link layer device.

Munter teaches the method of claim 12 wherein the CoS queue is one of a plurality of CoS queues serviced by a quality of service (QoS) ([0089], 5th line from the end) queue of the link layer device.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine [Lay] with [Munter] to obtain the invention as specified, for providing better service.

Response to Arguments

5. Applicant's arguments filed January 9, 2008 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made with another embodiment of Lay.

6. Applicant argues that Lay fails to teach or suggest the limitations of claim 1 wherein a flow control message is generated in the physical layer device and transmitted from the physical laver device to the link laver device.

In response, the device 104, along with PHY, ports 102(1) – 102(12) in Fig. 1A of Lay, are the physical layer devices wherein a flow control message is generated. In paragraph [0030], it states that "In addition to ports 102(1)-102(12), a gigabit interface 104 can be provided on switch 100", and in paragraph [0031], it states that "Gigabit interface 104, like ports 102(1)-102(12), has a PHY, a Gigabit Media Access Controller (GMAC) and a latency block. The GMAC can be a fully compliant IEEE 802.3z MAC operating at 1 Gbps full-duplex only and can connect to a fully compliant GMII or TBI interface through the PHY. In this example, GMAC ... (note that there is a typing error. The GMAC 108 should be 104) provides full-duplex flow control mechanisms and a low cost stacking solution for either twisted pair or TBI mode using in-band signaling for management."

Comparing [0028], lines 1-4, "Flow control is provided by each of the MACs. When flow control is implemented, the flow of incoming data packets is managed or controlled to reduce the chances of system resources being exhausted", and [0039], lines 1-2, "Switch 100, in one example of the invention, has a Flow Control Manager 116 that manages the flow of packet data" concludes that 116 is located in MAC.

Also refer to [0031], lines 6-7 of Lay, "In this example, GMAC ... provides full-duplex flow control mechanisms", and [0039], lines 4-6, "Flow Control Manager 116 can monitor the amount of memory being used by each port 102(1)-102(12) of switch 100 and the switch as a whole", along with [0031], lines 1-2, "Gigabit interface 104, like ports 102(1)-102(12), has a PHY, a Gigabit Media Access Controller (GMAC)".

It can be seen that Lay teaches that a flow control message is generated in the physical layer device and transmitted from the physical laver device to the link laver device.

7. Other independent claims 18, 19, and 20 have the same issue. Rejection of dependant claims remains effective.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wanda Z. Russell whose telephone number is (571) 270-1796. The examiner can normally be reached on Monday-Thursday 9:00-6:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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